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Knowledge, acceptability, and use of misoprostol for Prevention of postpartum hemorrhage after home birth setting in rural Ethiopia

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Abstract

Background: In low income countries especially Africa, more than a third of all maternal deaths are attributed to hemorrhage. Bleeding after childbirth (postpartum haemorrhage) is an important cause of maternal mortality, accounting for nearly one quarter of all maternal deaths worldwide. For prevention of post partum hemorrhage, misoprostol may be the only technology available to manage PPH at home-births.

Objective: the study aimed to assess the knowledge and future intentions of mothers to use misoprostol for prevention of postpartum hemorrhage (PPH) in pastoralist community of Somali regional state in Ethiopia.

Methods: the study was a cross sectional study on a population of women of reproductive age group living in the Adadle district. A multi stage random sampling technique was applied. A structured questionnaire with closed and open ended questions was used to collect the required information. Data entry, cleaning and analysis was carried out using SPSS version 19.

Results: A total of 829 women between the ages of 15-49 involved in the study. Of the respondents asked, 42(5.8 %) had a knowledge of the drug used and 34 of them have seen or heard of a woman given misoprostol after the baby was born and before the delivery of the placenta. Close to 42% of mothers were noted their willingness to use misoprostol in the future and the majorities prefer traditional birth attendants (TBAs) to provide the tablet during delivery. Health professionals such as doctors and nurses were engaged in administering the tablet as reported by 88% of the respondents. Degrees of involvement of Health extension workers (HEWs) and traditional birth attendants (TBAs) in misoprostol use were found to be very low 2.8% each respectively.

Conclusion: Close to six percent of mothers in the study was aware of misoprostol and future intention is reported by only 42% and the majorities prefer TBAs to provide the tablet during delivery. So raising awareness and knowledge of HEWs, community members and TBAs regarding the advantage of the tablet is very crucial in enhancing uptake of the drug and reducing incidence of PPH.

Introduction

About 358,000 women – most of them in low income countries – died from complications of pregnancy and childbirth[1]. The Millennium Development Goals established by the United Nations (UN) specifically strive to reduce the number of maternal deaths worldwide by 75% [2]. In low income countries especially Africa , more than a third of all maternal deaths are attributed to hemorrhage[3, 4]. Bleeding after childbirth (postpartum haemorrhage) is an important cause of maternal mortality, accounting for nearly one quarter of all maternal deaths worldwide. Common causes for postpartum haemorrhage (PPH) include failure of the uterus to contract adequately after birth leading to atonic PPH, tears of the genital tract leading to traumatic PPH and bleeding due to retention of placental tissue. Atonic PPH is the most common cause of PPH and the leading cause of maternal death[5]. The highest number of maternal deaths occurs on the first day after delivery highlighting the critical need for good quality care during this period[6].

Despite effective methods for treatment of postpartum hemorrhage (PPH)—notably the uterotonic oxytocin—mothers’ deaths are continuing unabated in resource-poor areas, and in parts of sub-Saharan Africa maternal mortality has stagnated as rates of skilled attendance at birth have declined [7]. Effectively preventing and treating PPH is especially difficult in areas where most births occur in homes or local clinics and access to emergency services, obstetric care, and surgery is limited[8] and without skilled attendance, misoprostol may be the only technology available to manage PPH at home-births[9, 10]. Misoprostol does not require special temperature control provisions, making it suitable in the absence of skilled care and/or when oxytocin is not available[11] and where most births take place at home with untrained birth attendants[12].

In Ethiopia, a national survey revealed that only 10% of births were delivered by the assistance of a skilled attendant [13]. Ethiopia’s maternal mortality rate is among the highest in the world with 470 deaths per 100,000 live births. It is estimated that 94% of births in Ethiopia occur at home. Ten percent of maternal deaths in Ethiopia are attributed to PPH[14]. So in order to avert the maternal death in this remote and pastoral area, it is critical to examine the potential application and the intent usage of misoprostol intervention. There is a paucity of evidence for the application of misoprostol in Ethiopia through community based network system. The objective of the study was to assess the knowledge and future intentions of mothers to use misoprostol for prevention of postpartum hemorrhage (PPH) in pastoralist community of Somali regional state in Ethiopia.

Methods

Study setting

This study was conducted in Adadle district in Gode zone of Somali regional state. The district is one of the eight districts in the zone and it is located 18km away from the Gode town. Adadle district has its own decentralized administrative hierarchies and it constitutes of fourteen kebele administration and 34 sub-kebeles/sub-villages.

During the time of data collection, 38 HEWs were deployed in 14 kebeles and 34 sub kebeles. In addition to the health facilities running by the district government, organizations such as MERLIN has been running mobile clinics and providing maternal and child health care to the rural community. In addition to this technical support and capacity building, MERLIN and Save UK-Ethiopia supply clean delivery kits to pregnant mothers through community volunteers and health facilities. The kit has 2 clean gloves, 1 surgical blade, cord tie, clean sheets, plasters and the recently distributed **one misoprostol tablets.**

Study design and sample size

This study applied a quantitative cross sectional study during May 2012. The sampled population were women of reproductive age group; 15-49 years living in the Adadle district were eligible to participate in the study. The sample size was estimated by using a single population proportion formula assessment of a cross-sectional survey. To estimate sample size for the survey, the following parameters were used: proportion of 50% of p as there is no prevalence study done in the operational area, precision of 5% on either side of the proportion and 95% confidence level. The computed sample size was 384 households. The final sample size determined was 844 by adding 10% for non responses and design effect of 2.

Sampling Method

A multi stage random sampling technique was applied to select the required study subjects from identified Kebeles and sub-kebeles of the district. Kebeles were stratified based on their agro-ecology status. And the filtering resulted in exclusion of a number of kebeles from the south Adadle, pastoralist area, from sampling pot. From the existing 14 Kebeles, one kebele from pastoralists and seven Kebeles from agro-pastoralist were randomly selected by simple random sampling technique and households were divided among the Kebeles based on proportional to population size (PPS). Once the number of households in the Kebeles was identified, the households with women aged 15 to 49 years were identified from the household list of sub villages/sub kebeles and random sampling schemes were applied to arrive at the actual household.

Data collection procedure

A structured questionnaire with closed and open ended questions was used to collect the required information. The questionnaire was first prepared in English language and then translated to the local language, Somali. The questionnaire was tested prior to collecting the actual data in order to standardize the flow, content and translation accuracy. Sub villages (26 households) that are not included in the main study were considered for the pretest. Accordingly, amendments were made based on the result of the finding.

Data collection was carried out by fourteen data collectors (health professionals with a background of nursing and public health officer) who went through a two days long intensive training on data collection technique, quality control and ethical issues. Three supervisors were assigned to supervise the data collection process and the overall process was led by one of the researchers.

Data quality control and management

Various appropriate measures were taken to ensure quality of collected data. Pretesting of the questionnaire, training to data collectors, development of tools in light of the study area culture, beliefs and languages, description of operational definition of certain variables and terminologies were some of the measures taken to control the quality. In addition, review and daily editing of the questionnaires was carried out on daily basis by the supervisors in order to identify errors, omissions and inconsistencies.

Statistical analysis

Data entry was carried out using Statistical Package for Social Sciences (SPSS) for windows version 19. The same statistical package was also used for data cleaning, recoding, categorization and analysis. Descriptive statistics was done to assess basic respondent's characteristics and to calculate rates and ratios on the various quality indicators.

Ethical considerations

Ethical clearance was collected from the regional health bureau of Somali Regional state and permission is also sought from the district health office and administration. Verbal informed consent was also obtained from each study participants. The participants were briefed about the objectives and importance of the survey before the commencement of interviews and all interviews were conducted in areas where the privacy of the study participants is maintained. As part of the ethical procedure, interviewed pregnant mother were advised for use of ANC and other maternity care services.

Results

Socio-demographic characteristics

A total of 829 women between the ages of 15-49 involved in the study. The mean (SD) age of the respondent was 29.4(\pm 7.40) the Inter Quartile Range (IQR) (25.0-35.0), most of the respondent were in the age group of 25-34 years followed by 35-49 years of age category. Overwhelming majority (89.4%) of the respondents were married during the study. Majority of the respondents were Muslim by religion and Somali by ethnicity. Most of the respondent in the study were either farmer (39.1%) or housewife (32.0%) by occupation. In this survey high proportion (76.7%) of the respondents were illiterate. The detailed socio demographic characteristics of the respondents are presented in Table 1.

Willingness and usage of misoprostol after delivery

Of the respondents asked, 42(5.8 %) had a knowledge of the drug used and 34(81%) of them have seen or heard of a woman given misoprostol after the baby was born and before the delivery of the placenta. Health professionals such as doctors and nurses were engaged in administering the tablet as reported by 88% of the respondents. Degrees of involvement of Health extension workers (HEWs) and traditional birth attendants (TBAs) in misoprostol use were found to be very low 2.8% each respectively. .

Acceptability of the use of misoprostol

Close to 42% of mothers were noted their willingness to use misoprostol in the future and the majorities prefer traditional birth attendants (TBAs) to provide the tablet during delivery (Figure 1). From the observation, the recent clean delivery kits distributed by Save UK and Merlin has misoprostol tablet and enhancing knowledge and awareness of mothers, TBAs and HEWs on the use and benefits of misoprostol will have an enormous impact in reducing incidence of post partum bleeding, which is the major health problem of the study area as reported by both study participants. Misoprostol is available both in the clean delivery kits as well as in the health facilities.

Discussions

The 2006 joint statement from the International Confederation of Midwives (and the International Federation of Gynaecology and Obstetrics stated that “In home births without a skilled attendant, misoprostol may be the only technology available to control PPH” [15]. Different studies have documented the application of misoprostol and other uterotonic drugs reduce occurrence of PPH related mortality and morbidity and WHO also recommended the use of uterotonic drugs in the absence of active management of third stage of labour [16].

Though the use of misoprostol for prevention and treatment of bleeding is relatively a new phenomenon in the scene of delivery care in the district, the study has tried to assess the awareness and future intentions of mothers.

Our study participants have a lower knowledge regarding the drug -misopropole. Only, 5.8% percent know the drug correctly. In contrary to other study, approximately 52% of women were even able to correctly recall that the name of the drug was misoprostol [17].

The role of CHWs in Ethiopia become more prominent even in low-resource nations, including Kenya, Tanzania, and Indonesia[18]. A close to 42 % of mothers noted their willingness to use misoprostol in the future and the majorities prefer TBAs to provide the tablet during delivery. In Nepal, seventy-four percent of women who had live vaginal births at endline (604/816) received misoprostol. Among the misoprostol recipients, 26.5% (160/604) consumed no tablets[19]. Similarly, nearly 80% of the eligible women who delivered at home said that they would use the tablets in the future. Seventy-four percent of women said that they would also be willing to purchase the misoprostol tablets in the future, and 80% of women said that they would recommend the drug to others [17]. A study conducted in rural Tigray region documented that community based providers, if trained, can effectively and correctly administer misoprostol and play crucial role in reducing PPH related morbidity and mortality [20]. Similarly, a community based trial in Afghanistan concluded that providing community based education and distribution of misoprostol by semi-literate CHWs is a safe, acceptable, feasible and effective strategy for prevention of PPH in low-resource settings[18]. This is a great contribution and evidence for the use of CHW, HEW and TBAs in the delivery of the drug in this particular area since the number of trained health professionals are limited and the geographical disperse in to consideration.

A close to 42% of mothers were noted their willingness to use misoprostol in the future and the majorities prefer traditional birth attendants (TBAs) to provide the tablet during delivery. Other study showed that there are three important factors contributed to the acceptability and

use of misoprostol tablets. Use of community awareness, which, to a great extent, was facilitated by the local public sector community-based lady health workers who helped in targeting pregnant women and their family members, and also part of community awareness, were discussions with community elders and influential people and counselling sessions provided accurate and credible information directly to the women, their family members, husbands, and birth attendants using culturally appropriate information, education and communication materials[17].

For women who are likely to deliver outside a health facility for any reason, providing misoprostol in advance of labour and delivery seems to be a reasonable choice. One of the tested channels of advance provision include community-based distribution of misoprostol to traditional birth attendants (TBAs) and community health workers[19]

Recent literature shown in a community based distribution in the district, from January 2006 through June 2008, 18,761 women received misoprostol and related counselling; 13 969 (74.5% of those receiving misoprostol) took it. Endline survey data show that 73.2% of recently delivered women reported having received misoprostol from an Female Community Health Volunteers (FCHVs) during pregnancy[19]. In Afghanistan, ninety-two percent of all women, regardless of whether they actually took the misoprostol or not, said they would recommend misoprostol to their friends and use it in their next pregnancy. Approximately 88% said they would be willing to pay to receive misoprostol in the future. Of the women who said they would be willing to pay for misoprostol, 88% were willing to pay at least 50 AFG (equivalent to approximately \$1 USD)[18].

Degrees of involvement of Health extension workers (HEWs) and TBAs in misoprostol administration were found to be very low. This is mainly related to the fact that TBAs are attending significant number of deliveries and it showed the entrenched relationship and trust between mothers of the study area and TBAs. As most of deliveries are occurring at home and clean delivery kits with misoprostol are being distributed by developmental partners like Merlin, raising awareness and knowledge of HEWs, community members and TBAs regarding the advantage of the tablet is very crucial in enhancing uptake of the drug and reducing incidence of PPH. Any intervention regarding misoprostol promotion and use should build on this social capital.

Similar phenomena have been documented in other studies. It is preferable for CHWs to provide, a package of care that includes both health education and community distribution of some commodities- bed net vouchers, clean birth kits, and misoprostol; basic postpartum and newborn care education[18].

Future intention to use documented in this study is much less than that of the Afghan study, which documented the acceptance of misoprostol and proportion of women willing to recommend misoprostol to their friends and use it in their next pregnancy by 92% of respondents [18]. The most plausible reason for this might be the role of community health volunteers in educating mothers regarding PPH and advantages of misoprostol application during home birth. In one pilot study, with over 13,000 women having used misoprostol, there has been little if any indication of resistance to future use because of unacceptable side effects[19]. Similarly, in Tanzania, misoprostol for PPH treatment is perceived as highly acceptable. All but one woman who took misoprostol reported they would take misoprostol again if they experienced PPH in a future pregnancy (99%) and would recommend misoprostol to a friend (99%) [21] and among the 770 eligible women in the intervention areas who delivered at home, 678 women (88%) took the misoprostol tablets provided to them in the clean delivery kits. Among these, 647 (84%) took the misoprostol tablets correctly, i.e., three misoprostol tablets ingested after the birth of the neonate, but prior to the delivery of the placenta[17]. Hence, the area is in pastoralist area where access to the health facilities becomes difficult and the community where living in a scattered and diversified, the usage and acceptability of misoprostol might be higher. A similar approach has been proposed if women could not access skilled birth attendants and no access to emergency obstetric care in the nearby health facilities across a distance. Under this circumstance, adequate training to the lay CHWs and ensuring correct timing of administration of misoprostol to the parturient can prevent PPH substantially[22].

It is difficult to not worthy mentioned the limitation of this kind of study in the pastoralist area. The participants were asked their practices which happened up to two years before the survey, this might result in recall bias. The data collectors were health care providers this might result in social desirability bias, women tending to respond in desired manners to please the interviewer.

Conclusion

Close to six percent of mothers in the study were aware of misoprostol and future intention is reported by only 42% and the majorities prefer TBAs to provide the tablet during delivery. So raising awareness and knowledge of HEWs, community members and TBAs regarding the advantage of the tablet and continuous supportive supervision and follow-up from the developmental partner in the area is very crucial in enhancing uptake of the drug and

reducing incidence of PPH which lead to the distribution and scale up of the service in this remote pastoral area.

Conflict of interest

All authors declare that they have no conflicts of interest associated with the publication of this manuscript.

Authors' contributions

BG conceived and designed the study, supervised data collection, performed analysis, interpreted the data, and drafted the manuscript and critically reviewed the manuscript. SB, KD,ZT,TT contributed significantly in the designed the study, supervised data collection, performed analysis, interpreted the data, and drafted the manuscript and critically reviewed the manuscript. All authors approved and read the final manuscript.

Disclaimer

The views, findings and conclusions represented in this article are those of the authors and do not necessarily represent the official views of the institutions with which they are affiliated.

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Table 1. Socio demographic characteristics of the respondents in Adadle district, May 2012

Variable	Number	Percent
Age category		
15-19	32	3.9
20-24	162	19.5
25-34	398	48.0
35-49	237	28.6
Marital status		
single	50	6.4
Married	697	89.4
Widowed	13	1.7
Divorced	19	2.5
Ethnicity		
Somali	825	99.5
Oromo	3	0.4
Gurage	1	0.1
Religion		
Muslim	826	99.6
Christian	3	0.4
Occupation		
Livestock herd	80	9.7
Farmer	324	39.1
Government employee	19	2.3
Student	4	0.5
Housewife	265	32.0
Self employee	60	7.2
Jobless	71	8.6
Education		
Illiterate	636	76.7
Literate	102	13.8

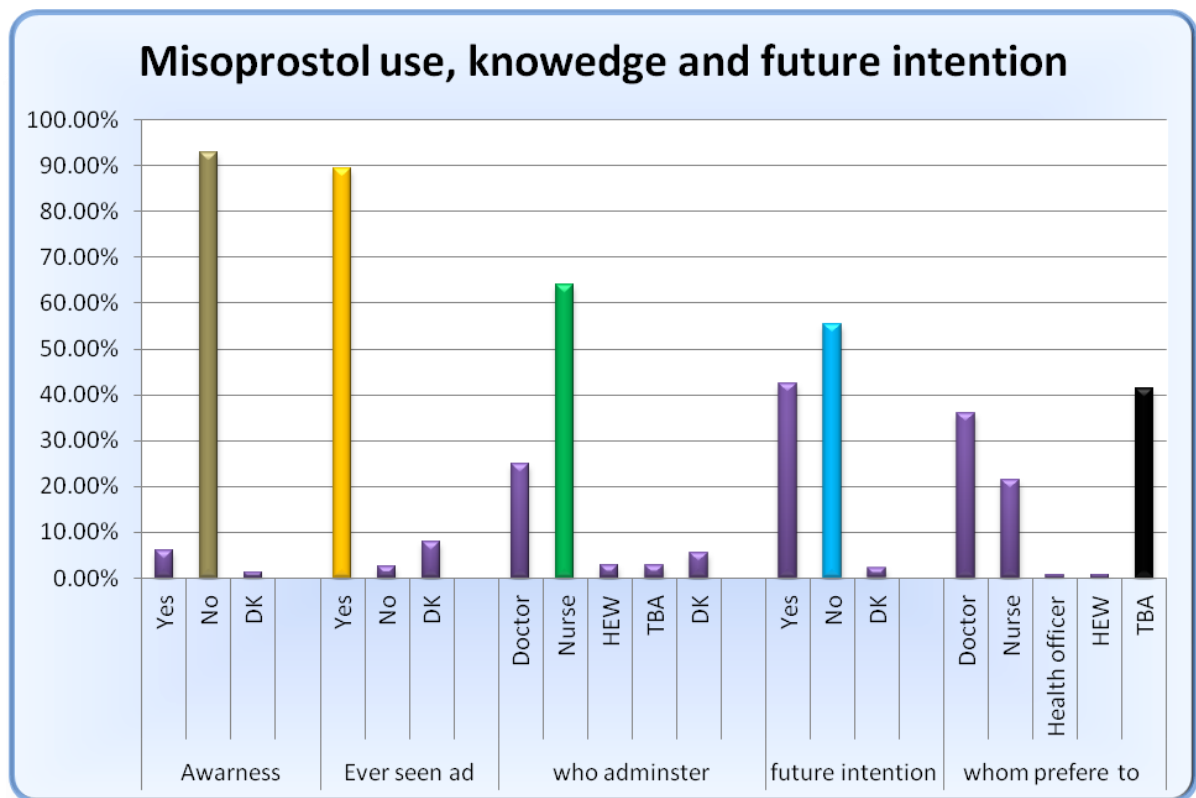


Figure 1; Summary of Misoprostol awareness, current use and future intentions by study participants, Adadle district May 2012